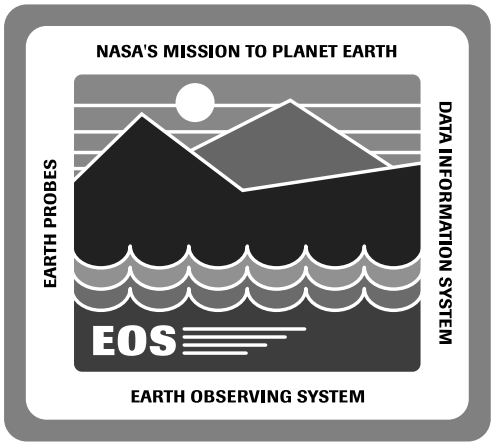
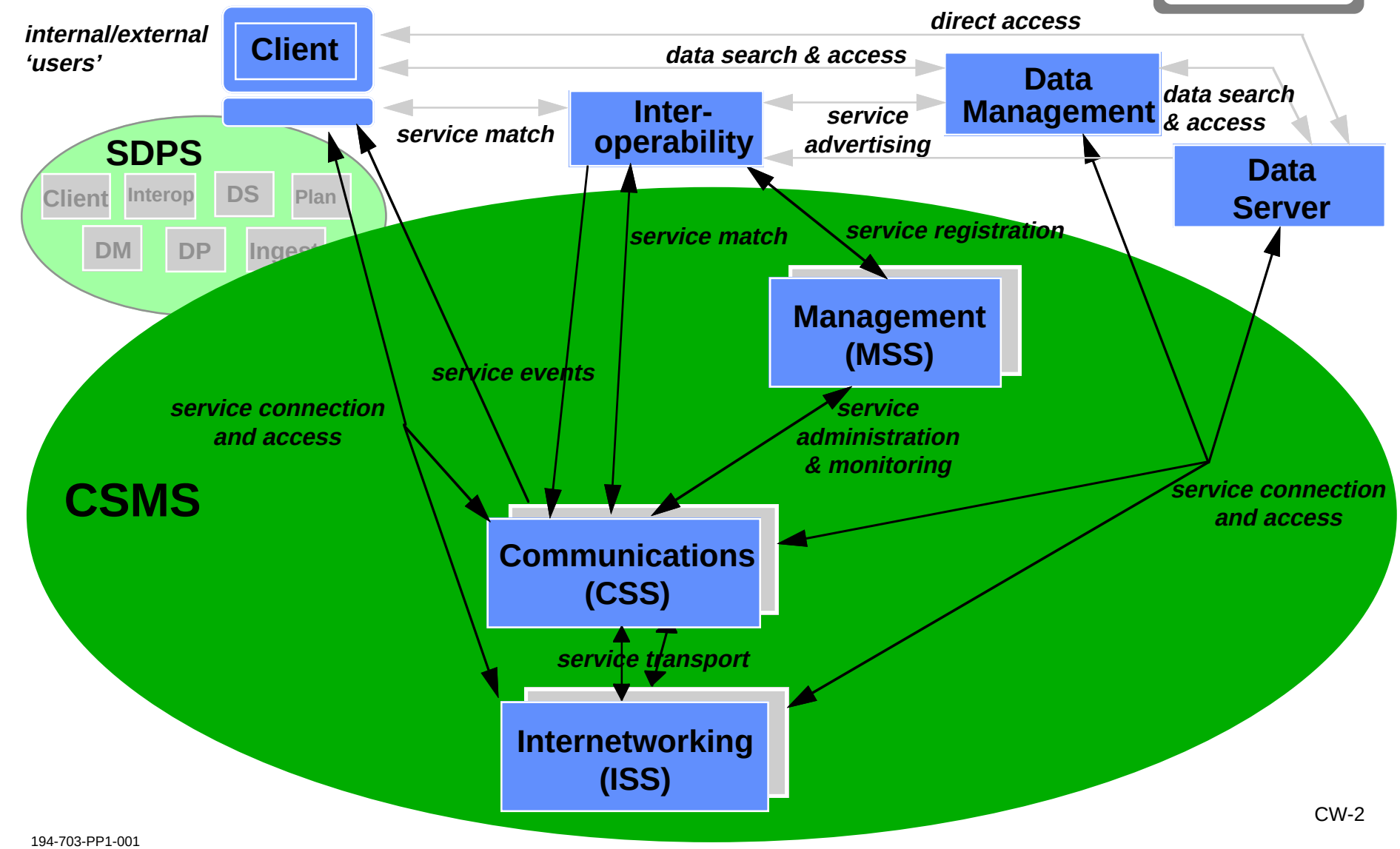


CSMS Scenarios

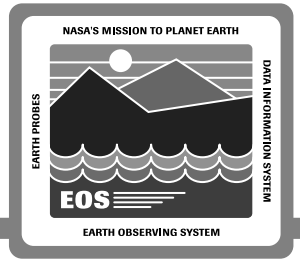
Carl Wheatley

System Design Review - 29 June 1994

CSMS Scenario Context



CSMS Scenario Steps



Step 0: Registering the Service

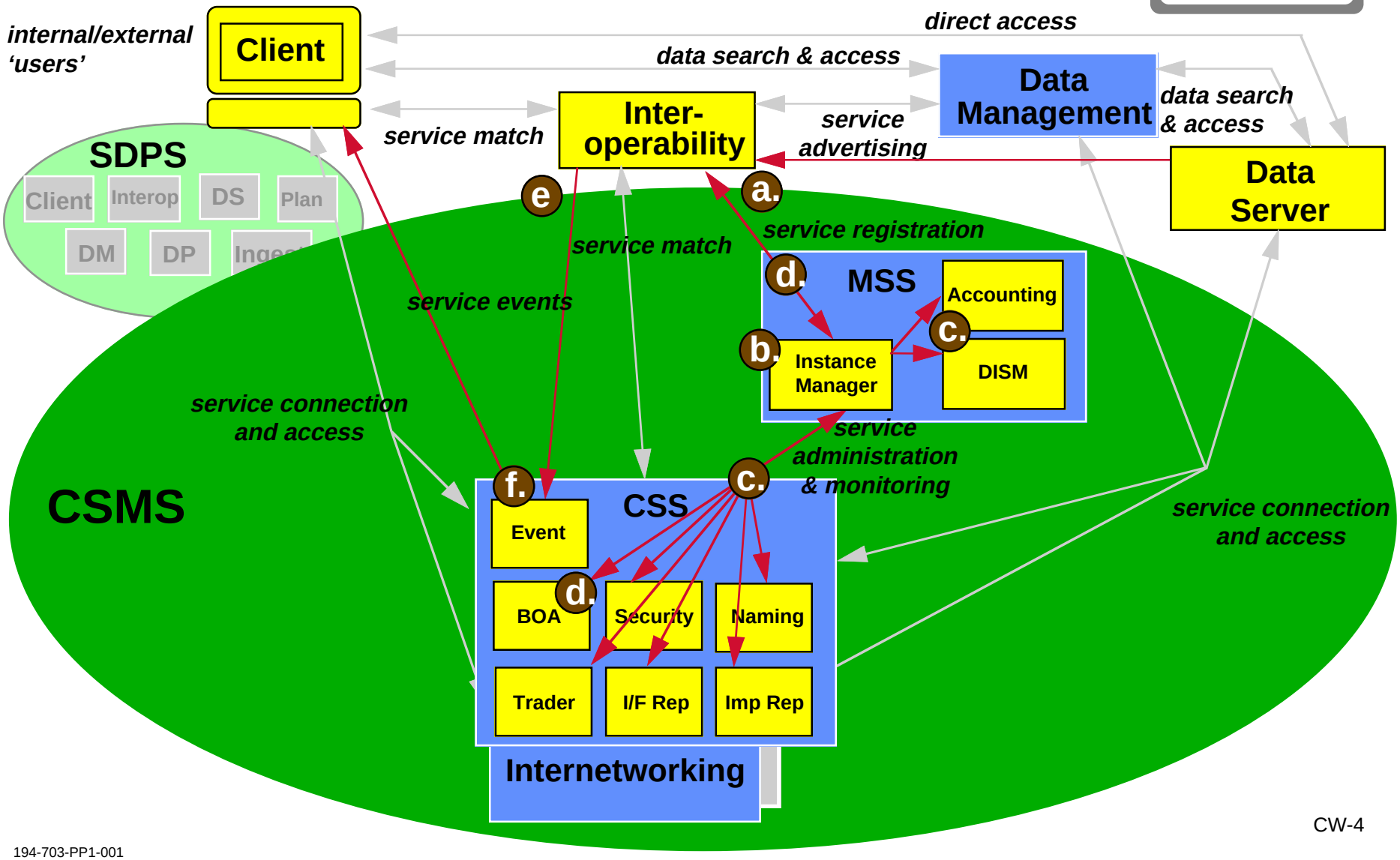
Step 1: Scientist Access to ECS

Step 2: Service Discovery

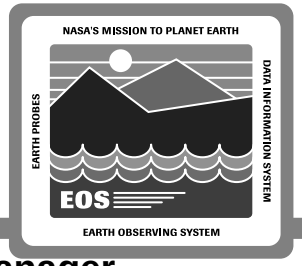
Step 3: Service Activation

Step 4: Service Access

Step 0: Registering the Service



Step 0: Registering the Service



a. Advertising service forwards relevent service parameters to MSS instance manager

Instance_Mgr (export[
Service _Implementation_Ref: ***service provider specified***
Service_Interface_Ref: ***service provider specified***
External_Properties: ***schema related name_values pairs for service type, cost, security, policy, QoS***

Service Type: 18	***(Data Product: Landsat 7 _OR)***
Discipline: 1	***(Land Processes)***
Cost_per_GByte: 1	***(1 CRU per Gbyte of data retrieved)***
Security: 1	***(science user only)***
Policy_Shared_Server: 2	***(No shared server allowed)***
QoS: 6	***(ftp only access)*])**

<rtn> service_offer_id

b. MSS Instance Manager performs type collections (filtering and sorting), and administrative associations (service to admin. domain groupings)

c. Sorted service attributes forwarded/replicated to infrastructure services

- ***BOA, Interface Repository, Implementation Rep., Naming, Security, Trader, DISM, Accounting***

d. BOA assigns reference_id, used by Trader for server_offer_id, which is returned to Advertising via instance manager

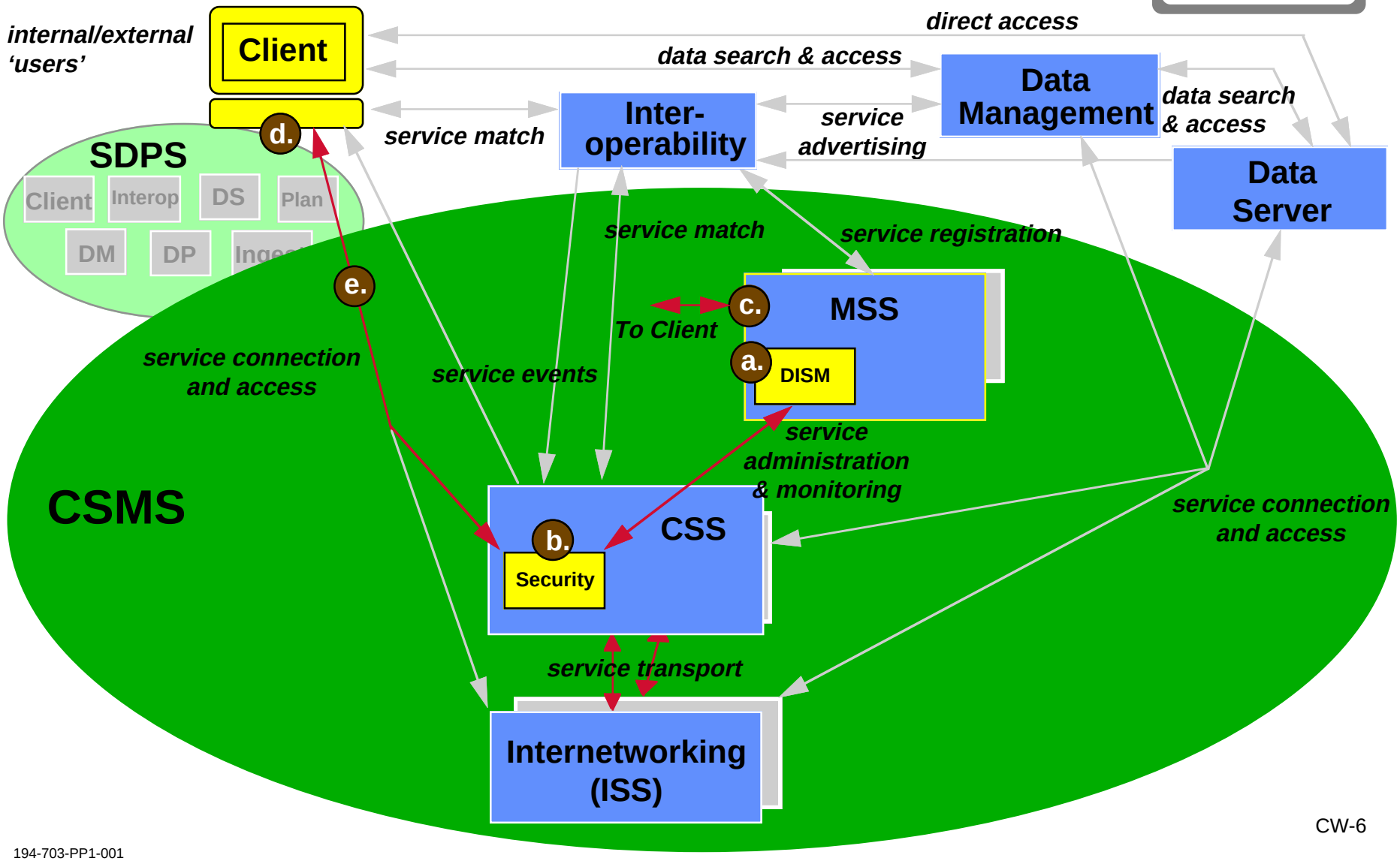
Advertising (New_Create[Service_Implementation_Ref, Service_BOA_UR])

e. Advertising sends out event notification to subscribed users

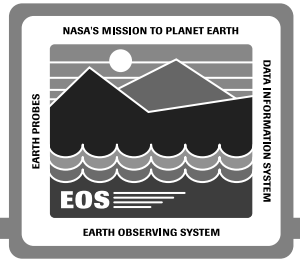
Event (push[
User_Lists: ***reference to push event lists of user groups and individuals*****])**

f. CSS Event Service propagates news of service addition to users

Step 1: Scientist Access to ECS



Step 1: Scientist Access to ECS



a. **MSS obtains ESDIS/DAAC lists of authorizations and builds information base as part of user and service schemas**
   - ***Provides type collections of users to groups, with access priviledges by service class across policy domains and account information***

b. **Information base passed to CSS domain security services**

Security (ACL_Register[Security_Name: LaRC_Security
User_Name: Bill Power_User
Password: G3dlw#j+
User_Class: Land_Processes Scientist
Access_Priviledge: Data Server:1 ***(unlimited access to all Data Servers)***
Security Server:0 ***(no access to all Security Servers)***
More: n ***(more name_value pairs of user/service class groupings)***
<rtn> User_Name, Password

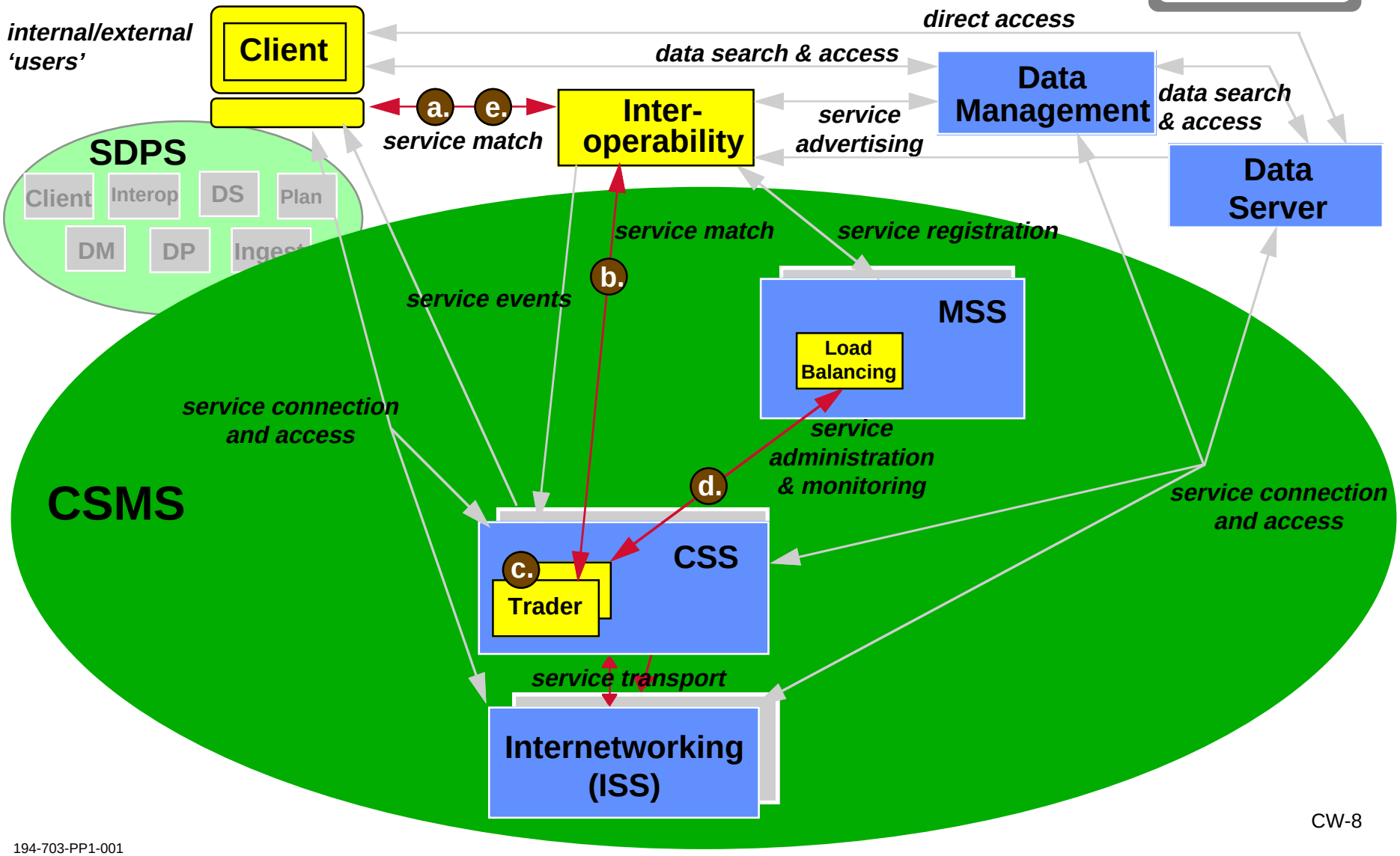
c. **Password and related account information provided as elected by Scientist through manual or electronic means**

d. **Science workbench does automatic login request**
   - ***Actual request is transparent to scientist and applications built over science workbench***

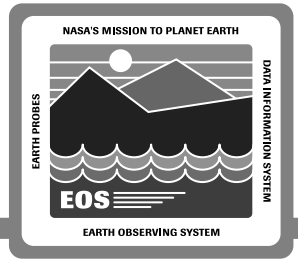
Security (Login [User_Name: Bill Power_User, Password: G3dlw#j+])
<rtn> Login_result

e. **Communications authenticates and authorizes scientist for ECS access**
   - ***Tickets provided for service access based on established user priviledges***
   - ***Subsequent service-level accesses performed transparently***

Step 2: Service Discovery



Step 2: Service Discovery



a. Client, via Science Workbench, searches for search servers

advertisement (search [

Service Type: search	**: user specified**
Discipline: Land Processes	**: user specified**
Data Type: Landsat_7_0R	**: user specified**
Protocol: Z.39.50	**: client environment**
Query Language: SQL3])	**: client environment**

b. Advertisement accesses CSS trader for available matching servers

Trader (import [

External_Properties: ***schema related name_values pairs for service type and constraints***

Service Type: 3 ***(Search)***	
Discipline: 1 ***(Land Processes)***	
Policy_Shared_Server: 1 ***(shared server allowed)***	
Query_Language: 3 ***(SQL3)***	
Query_Protocol: 3 ***(Z.39.50)***	
Trader_Search_Scope: 2 ***(Total ECS Domain)***	**: system default**
Load_Balance: 1 ***(Provide resource load assessment)*****])**	**: system default**

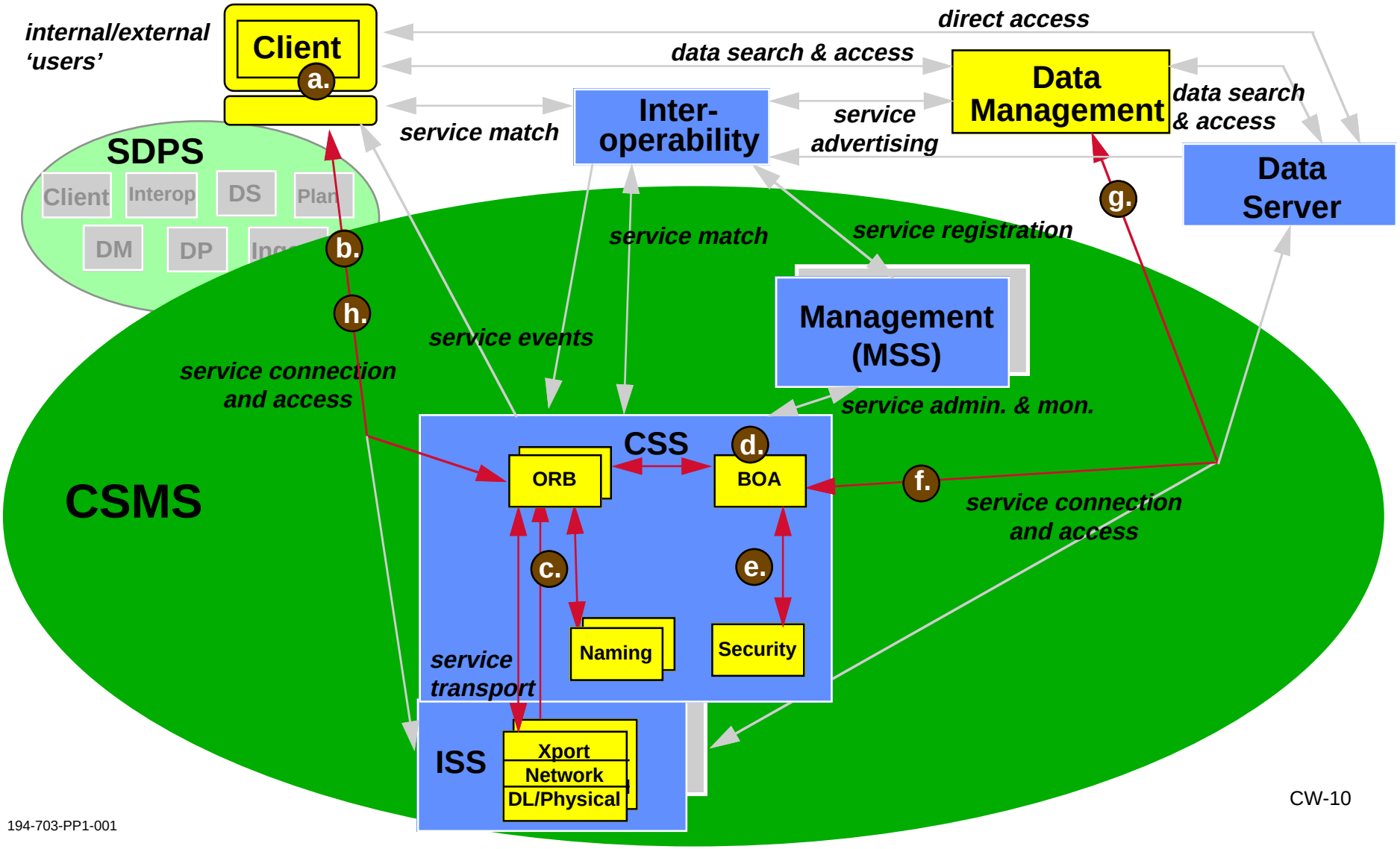
<ret> (LP_search_BOA_UR, search_interface_descriptions, search_external_properties) : one per offer discovered

c. Trader performs matching through local, then ECS federation

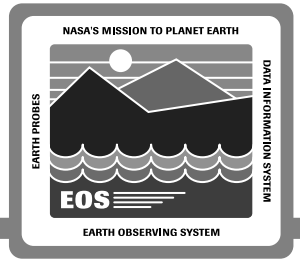
d. MSS Load Balancing provides resource load statistics for matches

e. Advertising collects trader returned information and maps data to container references for display to the client via Science Workbench

Step 3: Service Activation



Step 3: Service Activation



a. Client selects specific search server for access and begins building service request

desktop (copy_desktop_object [container_reference])

b. Science Workbench maps selected container_reference to cached search_BOA_UR and search_interface_descriptions, and initiates process to access the Data Mgmt. Landsat 7_OR search service

ORB (activate [search_interface_descriptions, LP_search_BOA_UR])
<ret> (EDC_LandProc_LIM_UR)

c. Using LP_search_BOA_UR and Naming, the client side ORB contacts the server-side BOA, traversing the ISS transport, network, and datalink/physical services for end-to-end transmission

d. The BOA accesses endpoint map of servers to map the LP_search_BOA_UR to the EDC_LandProc_LIM_UR

e. The BOA performs and authorization check of the user's priviledge to access the requested search service, using the embedded ticket obtained at user login

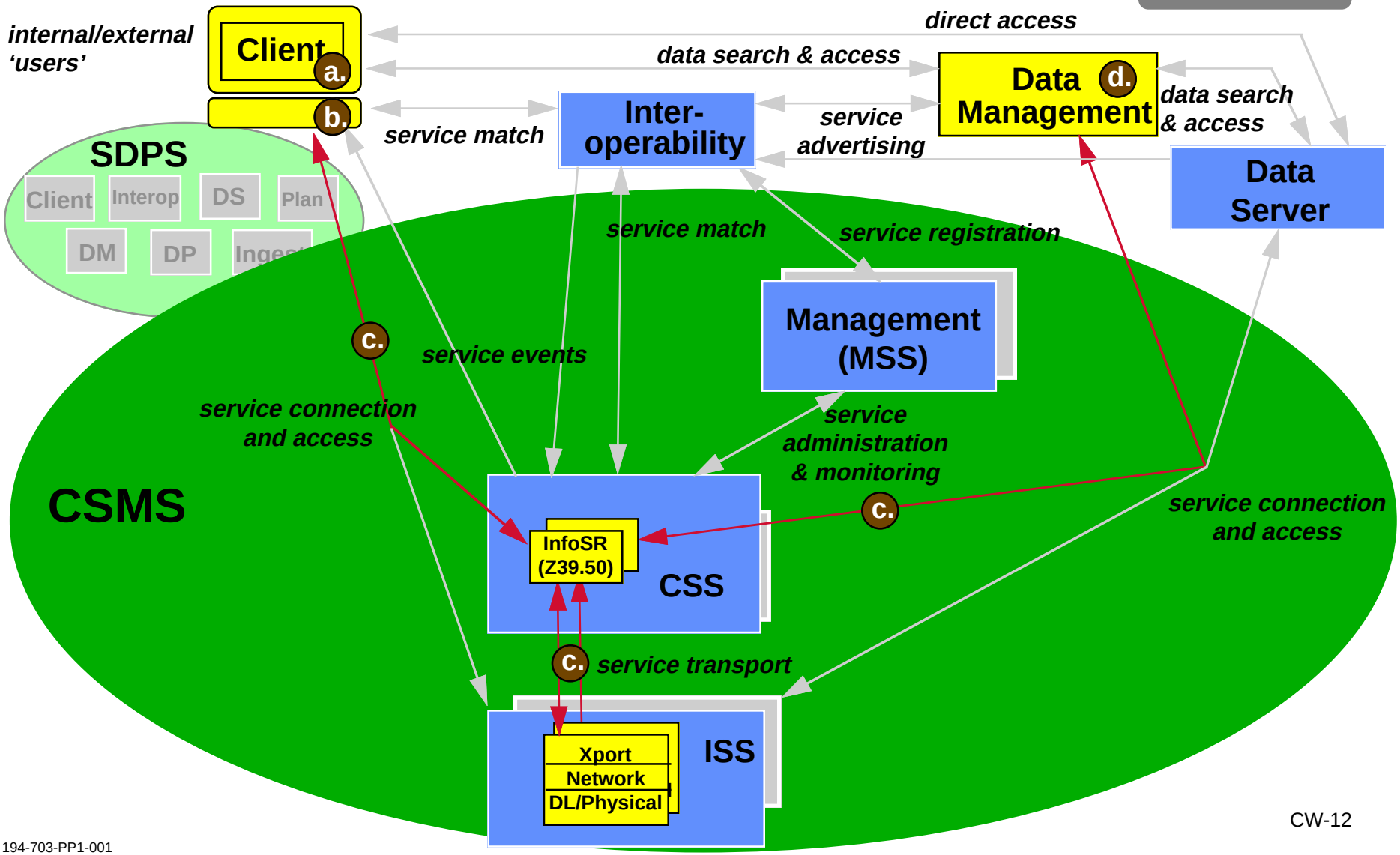
f. The BOA activates the EDC Land Processes LIM search service

LIM (activate [EDC_LandProc_LIM_UR])
<ret> (EDC_LandProc_LIM_UR, ready)

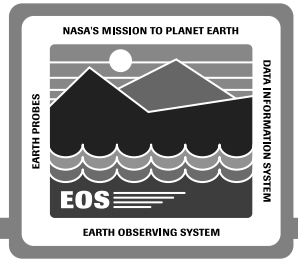
g. The activated LIM informs the BOA it is ready for service access

h. The BOA returns the ready result to the Science Workbench via the ORBs

Step 4: Service Access



Step 4: Search Access



a. Client builds Landsat 7 request using SQL3, and science workbench encapsulates it as the Client_Search_Interface (Landsat 7 request)

```
EDC.LandProc.LIM  (search [
                Results: sorted-selectable-list.Date,
                Source: Landsat 7, Level: 0R,
                Region: "polygonal coordinates",
                TemporalExtent: "yyyy/dd/mm..yyyy/dd/mm" ] )

desktop ( invoke_service [ EDC_LandProc_LIM_UR, Landsat7_request] )
```

b. Science workbench makes request over Z39.50 protocol

```
Z39.50 (transfer [EDC_LandProc_LIM_UR, Landsat7_request] )
```

c. CSS and ISS transfer request to the search service using peer-to-peer InfoSR Common Facility

d. Data Management LIM provides client-requested search service